

FORM PTO-1449
(Modified)

OCT 08 2004

U.S. Department of Commerce
Patent and Trademark Office

Attorney Docket No.: COOL-01500

Serial No.: 10/643,638

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(If more space is needed, attach separate sheets if necessary)

(37 CFR § 1.98(b))

Applicants: Peng Zhou et al

Filing Date: August 18, 2003

Group Art Unit: 3753

U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
FZ	AA	5,179,500	01/12/93	Koubek et al.	361	385	04/02/91
	AB						
	AC						
	AD						
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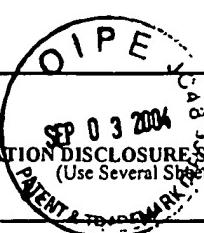
Examiner:

Philip Rec

Date Considered: 1/26/2005

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets If Necessary)		Applicants: Peng Zhou et al	
(37 CFR § 1.98(b))		Filing Date: August 18, 2003	Group Art Unit: 3753



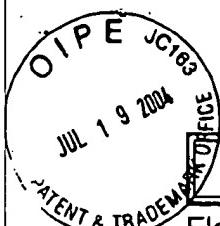
U.S. PATENT DOCUMENTS

Examiner Initials		Serial / Patent Number	Issue Date	Applicant / Patentee	Class	Subclass	Filing Date
FZ	AA	6,632,719 B1	10/14/03	DeBoer et al.	438	381	08/31/00
	AB						
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ELECTRONIC INFORMATION DISCLOSURE STATEMENT

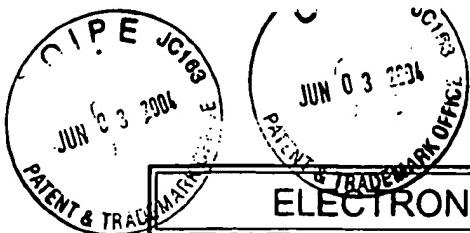
Electronic Version v18

Stylesheet Version v18.0

Title of Invention	BOILING TEMPERATURE DESIGN IN PUMPED MICROCHANNEL COOLING LOOPS				
Application Number:	10/643638 				
Confirmation Number:	4432				
First Named Applicant:	Peng Zhou				
Attorney Docket Number:					
Search string:	(3948316 or 5161089 or 5228502 or 5239443 or 5265670 or 5978220 or 5993750 or 6729383).pn.				
US Patent Documents					
Note: Applicant is not required to submit a paper copy of cited US Patent Documents					
init	Cite.No.	Patent No.	Date	Patentee	Kind
PZ	1	3948316	1976-04-06	Souriau	
	2	5161089	1992-11-03	Chu et al.	
	3	5228502	1993-07-20	Chu et al.	
	4	5239443	1993-08-24	Fahey et al.	
	5	5265670	1993-11-30	Zingher	
	6	5978220	1999-11-02	Frey et al.	
	7	5993750	1999-11-30	Ghosh et al.	
PZ	8	6729383	2004-05-04	Cannell et al.	B1

Signature

Examiner Name	Date
Philip Zec	1/26/2005



ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	BOILING TEMPERATURE DESIGN IN PUMPED MICROCHANNEL COOLING LOOPS
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Application Number: 10/643638



Confirmation Number: 4432

First Named Applicant: Peng Zhou

Attorney Docket Number:

Search string: (4467861 or 4903761 or 5016090 or 5269372
or 5275237 or 5310440 or 5346000 or 5388635
or 5945217 or 6019165 or 6034872 or 6039114
or 6253832 or 6257320 or 6330907 or 6336497
or 6366462 or 6367544 or 6431260 or 6466442
or 6519151 or 6533029 or 6536516 or 6601643
or 6609560 or 6651735 or 20030213580).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
F2	1	4467861	1984-08-28	Kiseev et al.			
	2	4903761	1990-02-27	Cima			
	3	5016090	1991-05-14	Galyon et al.			
	4	5269372	1993-12-14	Chu et al.			
	5	5275237	1994-01-04	Rolfson et al.			
	6	5310440	1994-05-10	Zingher			
	7	5346000	1994-09-13	Schlitt			
	8	5388635	1995-02-14	Gruber et al.			
	9	5945217	1999-08-31	Hanrahan			
	10	6019165	2000-02-01	Batchelder			
	11	6034872	2000-03-07	Chrysler et al.			
	12	6039114	2000-03-21	Becker et al.			
	13	6253832	2001-07-03	Hallefalt	B1		
↓	14	6257320	2001-07-10	Wargo	B1		
F2	15	6330907	2001-12-18	Ogushi et al.	B1		

F2	16	6336497	2002-01-08	Lin	B1
	17	6366462	2002-04-02	Chu et al.	B1
	18	6367544	2002-04-09	Calaman	B1
	19	6431260	2002-08-13	Agonafer et al.	B1
	20	6466442	2002-10-15	Lin	B2
	21	6519151	2003-02-11	Chu et al.	B2
	22	6533029	2003-03-18	Phillips	B1
	23	6536516	2003-03-25	Davies et al.	B2
	24	6601643	2003-08-05	Cho et al.	B2
V	25	6609560	2003-08-26	Cho et al.	B2
F2	26	6651735	2003-11-25	Cho et al.	B2

US Published Applications

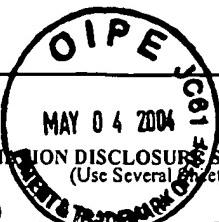
Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
F2	1	20030213580	2003-11-20	Philpott et al.	A1		

Signature

Examiner Name	Date
Gilip Zec	1/26/2005

FORM PTO-1449 (Modified)	MAY 04 2004 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets If Necessary) (37 CFR § 1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.: COOL-01500	Serial No.: 10/643,638
		Applicants: Peng Zhou et al.		
		Filing Date: August 18, 2003		Group Art Unit: 3753



FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS

		Document Number	Publication Date	Country / Patent Office	Class	Subclass	Translation
							Yes No
F2	AA	97212126.9	03/04/97	CN	B01D	61/42	X
F2	AB	2000-277540	10/06/00	JP	H01L	21/50	X

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

F2	AC	Stephen C. Jacobson et al., "Fused Quartz Substrates for Microchip Electrophoresis", Analytical Chemistry, Vo. 67, No. 13, July 1, 1995, pages 2059-2063.
	AD	Kendra V. Sharp et al., "Liquid Flows in Microchannels", 2002, Vol. 6, pages 6-1 to 6-38.
	AE	Shuchi Shoji et al., "Microflow devices and systems", J. Microech. Microeng. 4 (1994), pages 157-171, printed in the U.K.
	AF	Angela Rasmussen et al., "Fabrication Techniques to Realize CMOS-Compatible Microfluidic Microchannels", Journal of Microelectromechanical, Vo. 10, No. 2, June 2001, pages 286-297.
	AG	J. H. Wang et al., "Thermal-Hydraulic Characteristic of Micro Heat Exchangers", 1991, DSC-Vol. 32, Micromechanical Sensors, Actuators, and Systems, pages 331-339.
	AH	Gad Hetsoni et al., "Nonuniform Temperature Distribution in Electronic Devices Cooled by Flow in Parallel Microchannels", IEEE Transactions on Components and Packaging Technologies, March 2001, Vol. 24, No. 1, pages 16-23.
	AI	X. F. Peng et al., "Heat Transfer Characteristics of Water Flowing through Microchannels", Experimental Heat Transfer An International Journal, Vol. 7, No. 4, October-December 1994, pages 265-283.
	AJ	Linan Jiang et al., "Forced Convection Boiling in a Microchannel Heat Sink", Journal of Microelectromechanical Systems, Vol. 10, No. 1, March 2001, pages 80-87.
	AK	Muhammad M. Rahman et al., "Experimental Measurements of Fluid Flow and Heat Transfer in Microchannel Cooling Passages in a Chip Substrate", 1993, EEP-Vol. 4-2, Advances in Electronic Packages, pages 685-692.
	AL	X. F. Peng et al., "Forced convection and flow boiling heat transfer for liquid flowing through Microchannels", 1993, Int. J. Heat Mass Transfer, Vol. 36, No. 14, pages 3421-3427.
	AM	Lung-Jieh Yang et al., "A Micro Fluidic System of Micro Channels with On-Site Sensors by Silicon Bulk Micromaching", September 1999, Microfluidic Devices and Systems II, Vol. 3877, pages 267-272.
	AN	G. Mohiuddin Mala et al., "Heat transfer and fluid flow in microchannels", 1997, Int. J. Mass transfer, Vol. 40, No. 13, pages 3079-3088, printed in Great Britain.
	AO	J. M. Cuta et al., "Fabrication and Testing of Micro-Channel Heat Exchangers", SPIE Microlithography and Metrology in Micromaching, Vol. 2640, 1995, pages 152-160.
	AP	Linan Jiang et al., "A Micro-Channel Heat Sink with Integrated Temperature Sensors for Phase Transition Study", 1999, 12 th IEEE International Conference on Micro Electro Mechanical Systems, pages 159-164.
↓	AQ	Linan Jiang et al., "Fabrication and characterization of a microsystem for a micro-scale heat transfer study", J. Micromech. Microeng. 9 (1999) pages 422-428, printed in the U.K.
F2	AR	M. B. Bowers et al., "High flux boiling in low flow rate, low pressure drop mini-channel and micro-channel heat sinks", 1994, Int. J. Heat Mass Transfer, Vol. 37, No. 2, pages 321-332.
	AS	Yongendra Joshi, "Heat out of small packages", December 2001, Mechanical Engineer, pages 56-58.
	AT	A. Rostami et al., "Liquid Flow and Heat Transfer in Microchannels: a Review", 2000, Heat and Technology, Vol. 18, No. 2, pages 59-68.
	AU	Lian Zhang et al., "Measurements and Modeling of Two-Phase Flow in Microchannels with Nearly Constant Heat Flux Boundary Conditions", Journal of Microelectromechanical Systems, Vol. 11, No. 1, February 2002, pages 12-19.
	AV	Muhammad Mustafizur Rahman, "Measurements of Heat Transfer in Microchannel Heat Sinks", Int. Comm. Heat Mass Transfer, Vol. 27, No. 4, May 2000, pages 495-506.
	AW	Issam Mudawar et al., "Enhancement of Critical Heat Flux from High Power Microelectronic Heat Sources in a Flow Channel", Journal of Electronic Packaging, September 1990, Vol. 112, pages 241-248.
	AX	Nelson Kuan, "Experimental Evaluation of Micro Heat Exchangers Fabricated in Silicon", 1996, HTD-Vol. 331, National Heat Transfer Conference, Vol. 9, pages 131-136.
	AY	E. W. Kreutz et al., "Simulation of micro-channel heat sinks for optoelectronic Microsystems", Microelectronics Journal 31(2000) pages 787-790.
↓	AZ	J. C. Y. Koh et al., "Heat Transfer of Microstructure for Integrated Circuits", 1986, Int. Commun. Heat Mass Transfer, Vol. 13, pages 89-98.
F2	BA	Snezana Konecni et al., "Convection Cooling of Microelectronic Chips", 1992, InterSociety Conference on Thermal Phenomena, pages 138-144.

Examiner: Philip Zec

Date Considered: 1/26/2005

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449 (Modified)			U.S. Department of Commerce Patent and Trademark Office	Attorney Docket No.: COOL-01500	Serial No.: 10/643,638
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use Several Sheets If Necessary)			Applicants: Peng Zhou et al.		
(37 CFR § 1.98(b))			Filing Date: August 18, 2003	Group Art Unit: 3753	
OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)					
<i>F2</i>	BB	Michael B. Kleiner et al., "High Performance Forced Air Cooling Scheme Employing Microchannel Heat Exchangers", 1995, IEEE Transactions on Components, Packaging, and Manufacturing Technology-Part A, Vol. 18, No. 4, pages 795-804.			
	BC	Jerry K. Keska Ph. D. et al., "An Experimental Study on an Enhanced Microchannel Heat Sink for Microelectronics Applications", EEP-Vol. 26-2, Advances in Electronic Packaging, 1999, Vol. 2, pages 1235-1259.			
	BD	Shung-Wen Kang et al., "The Performance Test and Analysis of Silicon-Based Microchannel Heat Sink", July 1999, Terahertz and Gigahertz Photonics, Vol. 3795, pages 259-270.			
<i>↓</i>	BE	Joseph C. Tramontana, "Semiconductor Laser Body Heat Sink", Xerox Disclosure Journal, Vol. 10, No. 6, November/December 1985, pages 379-381.			
<i>F2</i>	BF	Sarah Arulanandam et al., "Liquid transport in rectangular microchannels by electroosmotic pumping", Colloid and Surfaces A: Physicochemical and Engineering Aspects 161 (2000), pages 89-102.			
	BG	Jeffery D. Barner et al., "Thermal Ink Jet Print Head Carriage with Integral Liquid Cooling Capabilities", Xerox Disclosure Journal-Vol. 21, No. 1, January/February 1996, pages 33-34.			
	BH	"Autonomous displacement of a solution in a microchannel by another solution", Research Disclosure, June 2001, pages 1046-1047.			
	BI	John M. Waldvogel, "Aluminum Silicon Carbide Phase Change Heat Spreader", Motorola, June 1999, Technical Developments, pages 226-230.			
	BJ	James P. Slupe et al., "An idea for maintaining a stable thermal environment for electronic devices", Research Disclosure, August 2001, page 1312.			
	BK	John M. Waldvogel, "A Heat Transfer Enhancement Method for Forced Convection Bonded-Fin Heatsinks", Motorola, December 1997, Technical Developments, pages 158-159.			
	BL	"Thin Heat Pipe for Cooling Components on Printed Circuit Boards", IBM Technical Disclosure Bulletin, Vol. 34, No. 7B, December 1991, pages 321-322.			
	BM	R. C. Chu et al., "Process for Nucleate Boiling Enhancement", IBM Technical Disclosure Bulletin, Vol. 18, No. 7, December 1975, page 2227.			
	BN	J. Riseman, "Structure for Cooling by Nucleate Boiling", IBM Technical Disclosure Bulletin, Vol. 18, No. 11, April 1976, page 3700.			
	BO	"Integrally Grooved Semiconductor Chip and Heat Sink", October 1971, IBM Technical Disclosure Bulletin, Vol. 14, No. 5, page 1425.			
	BP	"Enhanced Cooling of Thermal Conduction Module", IBM Technical Disclosure Bulletin, Vol. 30, No. 5, October 1987, page 426.			
	BQ	"Heat Exchanger Modules for Data Process with Valves Operated by Pressure from Cooling Water Pump", IBM Technical Disclosure Bulletin, Vol. 30, No. 5, October 1987, page 419.			
	BR	"Cold Plate for Thermal Conduction Module with Inlet for Cooling Water Near Highest Power Chips", IBM Technical Disclosure Bulletin, Vol. 30, No. 5, October 1987, page 413.			
	BS	"Circuit Module Cooling with Coaxial Bellow Providing Inlet, Outlet and Redundant Connections to Water-Cooled Element", IBM Technical Bulletin, Vol. 30, No. 5, October 1987, pages 345-347.			
	BT	"Piping System with Valves Controlled by Processor for Heating Circuit Modules in a Selected Temperature Profile for Sealing Integrity Test Under Temperature Stress", IBM Technical Disclosure Bulletin, Vol. 30, No. 5, October 1987, page 336.			
	BU	"Cooling System for Chip Carrier on Card", IBM Technical Disclosure Bulletin, Vol. 31, No. 4, September 1988, pages 39-40.			
	BV	"Chip Cooling Device", IBM Technical Disclosure Bulletin, Vol. 30, No. 9, February 1988, pages 435-436.			
	BW	W. E. Ahern et al., "Silicon Heat Sink Method to Control Integrated Circuit Chip Operating Temperatures", IBM Technical Disclosure Bulletin, Vol. 21, No. 8, January 1979, pages 3378-3380.			
	BX	N. P. Bailey et al., "Cooling Device for Controlled Rectifier", IBM Technical Disclosure Bulletin, Vol. 21, No. 11, April 1979, pages 4609-4610.			
	BY	W. J. Kleinfelder et al., "Liquid-Filled Bellows Heat Sink", IBM Technical Disclosure Bulletin, Vol. 21, No. 10, March 1979, pages 4125-4126.			
	BZ	R. P. Chrisfield et al., "Distributed Power/Thermal Control", IBM Technical Disclosure Bulletin, Vol. 22, No. 3, August 1979, pages 1131-1132.			
	CA	A. J. Arnold et al., "Heat Sink Design for Cooling Modules in a Forced Air Environment", IBM Technical Disclosure Bulletin, Vol. 22, No. 6, November 1979, pages 2297-2298.			
	CB	A. J. Arnold, "Structure for the Removal of Heat from an Integrated Circuit Module", IBM Technical Disclosure Bulletin, Vol. 22, No. 6, November 1979, pages 2294-2296.			
<i>↓</i>	CC	U. P. Hwang et al., "Cold Plate for Thermal Conduction Module with Improved Flow Pattern and Flexible Base", IBM Technical Disclosure Bulletin, Vol. 25, No. 9, February 1983, page 4517.			
<i>F2</i>	CD	K. C. Gallagher et al., "Cooling System for Data Processor with Flow Restricter in Secondary Loop to Limit Bypass-Cooling Water Flow", IBM Technical Disclosure Bulletin, Vol. 26, No. 5, October 1983, page 2658.			
Examiner:	<i>Philip Zee</i>		Date Considered:	<i>1/26/2005</i>	
EXAMINER:	Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.				

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			Applicants: Peng Zhou et al.		
			Filing Date: August 18, 2003	Group Art Unit: 3753	
OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)					
FZ	CE	R. C. Chu et al., "Silicon Heat Sink for Semiconductor Chip", IBM Technical Disclosure Bulletin, Vol. 24, No. 11A, April 1982, page 5743.			
	CF	J. M. Eldridge et al., "Heat-Pipe Vapor Cooling Etched Silicon Structure", IBM Technical Disclosure Bulletin, Vol. 25, No. 8, January 1983, pages 4118-4119.			
	CG	J. R. Skoborn, "Thermoelectrically Cooled Module", IBM Technical Disclosure Bulletin, Vol. 27, No. 1A, June 1984, page 30.			
	CH	M. J. Brady et al., "Etched Silicon Integrated Circuit Heat Sink", IBM Technical Disclosure Bulletin, Vol. 27, No. 1B, June 1984, page 627.			
	CI	H. D. Edmonds et al., "Heat Exchange Element for Semiconductor Device Cooling", IBM Technical Disclosure Bulletin, Vol. 23, No. 3, August 1980, page 1037.			
	CJ	R. W. Noth, "Heat Transfer from Silicon Chips and Wafers", IBM Technical Disclosure Bulletin, Vol. 17, No. 12, May 1975, page 3544.			
	CK	"Forced Boiling Cooling System with Jet Enhancement for Critical Heat Flux Extension", IBM Technical Disclosure Bulletin, Vol. 39, No. 10, October 1996, page 143.			
	CL	"Miniature Heat Exchanger for Corrosive Media", IBM Technical Disclosure Bulletin, Vol. 38, No. 01, January 1995, pages 55-56.			
	CM	"Self-Contained Active Heat Dissipation Device", IBM Technical Disclosure Bulletin Vol. 39, No. 04, April 1996, pages 115-116.			
	CN	C. J. Keller et al., "Jet Cooling Cup for Cooling Semiconductor Devices", IBM Technical Disclosure Bulletin, Vol. 20, No. 9, February 1978, pages 3575-3576.			
	CO	B. J. Ronkese, "Centerless Ceramic Package with Directly Connected Heat Sink", IBM Technical Disclosure Bulletin, Vol. 20, No. 9, February 1978, page 3577-3578.			
	CP	K. S. Sachar, "Liquid Jet Cooling of Integrated Circuit Chips", Vol. 20, No. 9, February 1978, pages 3727-3728.			
	CQ	A. H. Johnson, "Device Cooling", IBM Technical Disclosure Bulletin, Vol. 20, No. 10, March 1978, pages 3919-3920.			
	CR	A. L. Pacuzzo et al., "Integrated Circuit Module Package Cooling Structure", IBM Technical Disclosure Bulletin, Vol. 20, No. 10, March 1978, pages 3898-3899.			
	CS	R. D. Durand et al., "Flexible Thermal Conductor for Electronic Module", IBM Technical Disclosure Bulletin, Vol. 20, No. 11A, April 1978, page 4343.			
	CT	D. Balderes et al., "Liquid Cooling of a Multichip Module Package", IBM Technical Disclosure Bulletin, Vol. 20, No. 11A, April 1978, pages 4336-4337.			
	CU	J. A. Dorler et al., "Temperature Triggerable Fluid Coupling System for cooling Semiconductor Dies", IBM Technical Disclosure Bulletin, Vol. 20, No. 11A, April 1978, pages 4386-4388.			
	CV	V. W. Antonetti et al., "Integrated Module Heat Exchanger", IBM Technical Disclosure Bulletin, Vol. 20, No. 11A, April 1978, page 4498.			
	CW	P. Hwang et al., "Conduction Cooling Module", IBM Technical Disclosure Bulletin, Vol. 20, No. 11A, April 1978, pages 4334-4335.			
	CX	A. J. Arnold, "Electronic Packaging Structure", IBM Technical Disclosure Bulletin, Vol. 20, No. 11B, April 1978, pages 4820-4822.			
	CY	V. Y. Doo et al., "High Performance Package for Memory", IBM Technical Disclosure Bulletin, Vol. 21, No. 2, July 1978, pages 585-586.			
	CZ	"Multi-Chip Package with Cooling by a Spreader Plate in Contact with a Chip having Cylindrical Holes Mating with an Inverse Frame Providing Water Flow Within its Pins", IBM Technical Disclosure Bulletin, Vol. 31, No. 5, October 1988, pages 141-142.			
	DA	J. Landrock et al., "Cooling System for Semiconductor Chips", IBM Technical Disclosure Bulletin, Vol. 23, No. 4, September 1980, page 1483.			
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	DC	"Circuit Package with Circulating Boiling Liquid and Local Heat Exchanger to Limit Vapor in Coolant Outlet", IBM Technical Disclosure Bulletin, Vol. 31, No. 12 May 1989, page 34.			
	DD	"Circuit Module Cooling with Multiple Pistons Contacting a Heat Spreader/Electrical Buffer Plate in Contact with Chip", IBM Technical Disclosure Bulletin, Vol. 31, No. 12, May 1989, page 5-7.			
	DE	"TCM-LIKE Circuit Module with Local Heat Sink Resting on Chip and Chip Separated From Coolant by Bellows with Pins and Deflector Plate Attached to Local Heat Sink and Extending Above Bellows into Region of Coolant Flow", IBM Technical Disclosure Bulletin, Vol. 31, No. 11, pages 305-306.			
↓	DF	"Water-Cooled Circuit Module with Grooves Forming Water Passages Near Heat-Producing Devices", IBM Technical Disclosure Bulletin, Vol. 31, No. 12, May 1989, pages 49-50.			
FZ	DG	"Cold Plate for Thermal conduction Module with Only Peripheral Mounting bolts, Large Surface Area Fin Inserts and Reduced Water Flow and Thermal Resistances", IBM Technical Disclosure Bulletin, Vol. 31, No. 12, May 1989, page 59.			
Examiner: Philip Zel		Date Considered: 1/26/2005			
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			Filing Date: August 18, 2003		Group Art Unit: 3753
OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)					
FZ	DH	"Thermal Control Hardware for Accelerated Run-In Testing of Multi-Chip Modules", IBM Technical Disclosure Bulletin, Vol. 32, No. 5A, October 1989, page 129-130.			
	DI	"Means of Removing More Heat From a TCM (Or Other Liquid-Cooled Logic Package) By Reducing the Coolant Temperature", IBM Technical Disclosure Bulletin, Vol. 32 No. 5A, Oct 1989, pages 153-154.			
	DJ	E. G. Loeffel et al., "Liquid Cooled Module with Compliant Membrane", IBM Technical Disclosure Bulletin, Vol. 20, No. 2, July 1977, pages 673-674.			
	DK	V. Y. Doo et al., "Method of Effective Cooling of a High Power Silicon Chip", IBM Technical Disclosure Bulletin, Vol. 20, No. 4, September 1977, page 1436-1437.			
	DL	V. Y. Doo et al., "Semiconductor Chip Cooling Package", IBM Technical Disclosure Bulletin, Vol. 20, No. 4, September 1977, pages 1440-1441.			
	DM	"Heat Sink Fabrication Method", IBM Technical Disclosure Bulletin, Vol. 27, No. 10A, March 1985, page 5656-5657.			
	DN	"Thermal Conduction Module with Liquid Dielectric and Pistons with Surface Treatment for Enhanced Nucleate Boiling", IBM Technical Disclosure Bulletin, Vol. 27, No. 12, May 1985, page 6904.			
	DO	"Pin Fin Array Heat Pipe Apparatus", IBM Technical Disclosure Bulletin, Vol. 37, No. 09, September 1994, page 171.			
	DP	Youngcheol Joo et al., "Fabrication of Monolithic Microchannels for IC Chip Cooling", 1995, IEEE Micro Electro Mechanical Systems, pages 362-367.			
	DQ	Jaisree Moorthy et al., <u>Active control of electroosmotic flow in microchannels using light</u> , January 26, 2001, Sensors and Actuators B 75, pages 223-229.			
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Examiner: Philip Zel			Date Considered: 1/26/2005		
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Examiner: *Philip Lee*Date Considered: *1/26/2005*

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